Health hazards to children from people smoking in playgrounds – "No Smoking" signs do protect children

Background

In 2009, more than 86 billion cigarettes were consumed in Germany alone. About 95 percent of these were filter cigarettes, from which the butts are leftover as waste. These cigarette butts also contain toxins that are released into the environment and which, if swallowed, can lead to serious toxicity for small children and thus present more than just an aesthetic problem.

Toxicity of cigarette butts

Cigarette butts consist of filter and tobacco remnants. The filter mainly contains cellulose acetate, a plastic that only degrades slowly through photochemical and biochemical processes in the environment. Depending on existing environmental conditions, such as climate and soil conditions, cigarette butts can linger for many months or even years in nature.

The filter can absorb up to 50 percent of the tar from cigarette smoke. Thus high concentrations of toxic and carcinogenic substances from the smoke accumulate in the filter. As bits of rubbish lying around, cigarette butts release the residual toxins contained in the tobacco and filter. These include substances such as nicotine, arsenic and polycyclic aromatic hydrocarbons and heavy metals like lead, copper, chromium and cadmium. What is flushed out of the cigarette butts is, for example, toxic for aquatic microbes and also for fish.

The toxic potential of cigarette butts is also a risk for humans, especially children. Even the small amount of one to three cigarette butts if swallowed by infants can cause symptoms of poisoning, such as nausea, vomiting and diarrhoea. Such cases are not rare. The Poison Information Centre Berlin, for example, reported some 921 cases in 2008 during which infants had ingested cigarettes, cigarette butts, tobacco or residual cigarette liquid. Cigarette butts are not only an aesthetic problem, they also have a toxic potential and should never be disposed of by simply littering the environment.

Consensus for a ban on smoking in playgrounds

Next to the pollution caused by cigarette butts, smoking in playgrounds may pose a social and health problem. People who smoke are not only a bad example for children, but the children could also be exposed to tobacco smoke. Without a doubt, the greatest danger occurs, when small children play with butts lying around and put them into their mouths and swallow them. Therefore the German Children's Fund (DKHW) and many local chapters of the German Child Protection Agency (DKSB) demand a ban on smoking in playgrounds.

According to a survey by the Bertelsmann Foundation in 2007, no less than 85 percent of the population would support such a legal ban on smoking in playgrounds.

Legal bans on smoking in playgrounds

In Germany, the legislative authority for smoke-free playgrounds rests with the states and municipalities. As part of their state smoke-free laws, three German states imposed a smoking ban in playgrounds: Bavaria, Brandenburg and Saarland. In several cities there are also local bans on smoking in playgrounds, for example, in Heidelberg, Bottrop, Magdeburg, Wolfsburg and Cologne. Other cities and municipalities at least prohibit the improper disposal of butts (i.e. litter) in playgrounds, for example, Bremerhaven, Borna in Saxony and Heusenstamm in Hesse.

Effectiveness of smoking bans in playgrounds

In October 2009 and April 2010, scientists at the German Cancer Research Center surveyed the effectiveness of various regulations on smoking in playgrounds. A total of 30 randomly selected playgrounds (10 per city) in Heidelberg (which has a municipal smoking ban since November 2005), Wuerzburg (smoking ban in accordance with the Bavarian smoke-free law since 1 January 2008) and Mannheim (no ban on smoking) were visited in October 2009 in order to count all cigarette butts visible in the playground areas. In April 2010, the same playgrounds were visited a second time and analyzed in the same way.

In October 2009, an average of 10 butts were found per playground in Heidelberg while it was 36 in Wuerzburg and 46 butts in Mannheim (Figure 1). In April 2010, the differences were even clearer: in Heidelberg there were on average 16 butts per playground, in Wuerzburg 54 and Mannheim 114 to be found per playground.

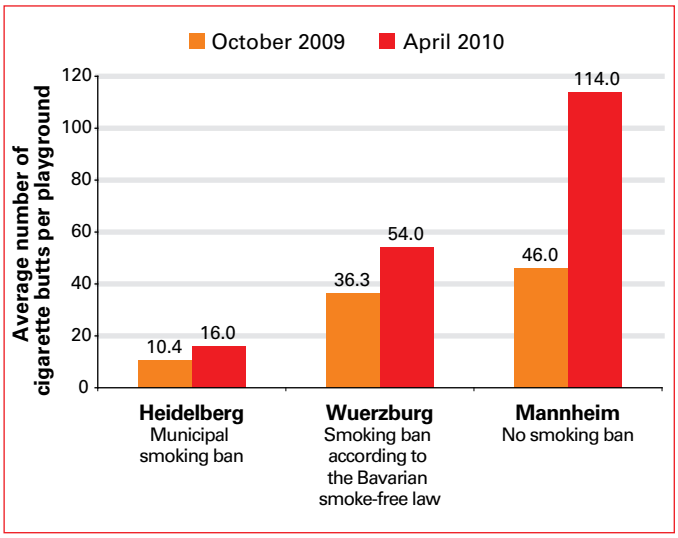

Figure 1: Cigarette butts in playgrounds in Heidelberg, Wuerzburg and Mannheim in October 2009 and April 2010.

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No smoking signs are crucial for the effectiveness of a smoking ban

The municipal smoking ban in Heidelberg seems to be very effective, while despite the state-wide smoking ban in Wuerzburg, there were found to be around three times as many butts in playgrounds as in Heidelberg.

In October 2009, there were even nearly as many butts found per play area in the Wuerzburg playgrounds as in Mannheim, where there is no smoking ban in playgrounds. The reason for the reduced effectiveness of smoking control in Wuerzburg – when compared to Heidelberg – lies in the fact that a clearly visible "no smoking" sign (Fig. 2) had been erected in nine of the ten Heidelberg playgrounds visited, whereas no signs were present in Wuerzburg. It is assumed that the Bavarian smoking ban is barely known in the playgrounds of Wuerzburg, while in Heidelberg the attention of almost all the visitors is drawn to the sign with the smoking ban. In addition, in mid-2009 Heidelberg launched a poster campaign against all littering of public places and amongst other things, focussed on the problem of cigarette butts in playgrounds (Fig. 3).

Our findings show that a ban on smoking in playgrounds is only effective if it is communicated through appropriate measures (such as signs or campaigns). Primarily through these no smoking signs or posters are smokers thus reminded of their responsibilities towards children when they are in a playground.

Figure 2: No smoking sign in a Heidelberg playground: "This is a non-smoking playground. Set a good example. Children have the right to play in a healthy area!"

Figure 3: Poster campaign for playground cleanliness in Heidelberg: "Watch out – spoilsports! Less rubbish, more Heidelberg!"

Conclusion:

- Waste in the form of cigarette butts is toxic and contains poisons that are released into the environment.
- Children are at risk on playgrounds, in particular through cigarette butts, because swallowing can cause poisoning with symptoms such as nausea, vomiting and diarrhoea.
- Smoking bans to protect children in playgrounds are a meaningful and important measure - 85 % of Germans support the application.
- Communication is crucial for the effectiveness of a smoking ban in playgrounds. Only by clearly visible signs are playground visitors who smoke made aware of their responsibilities towards the children.
- The rule is: "No Smoking" signs do protect children.

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